

Osteoclast Activity

1. Transcription of DNA into an RNA transcript.
2. RNA transcript threads through nuclear pore.
3. Translation by ribosome of rough endoplasmic reticulum results in protein production.
4. Transport vesicles transport proteins to Golgi complex (5) for sorting and modification
6. Transfer vesicles transfer proteins for cistern (sac) to the cistern (sac) for continued sorting and modification.
7. Lysosomes contain collagenase and other digestive enzymes.
8. Exocytosis of enzymes such as collagenase into "reabsorption well"
9. Note secure attachment by osteoclast to compact bone by "integrans"
10. Mitochondria produce ATP by cellular respiration.
11. ATP powers proton pump. pH = 5 in reabsorption well creating an acid "microenvironment" for calcium reabsorption.
12. Bone Matrix broken down and is now in fluid of reabsorption well.
13. Receptor-Mediated Endocytosis transports products of digestion into the osteoclast.
14. Endosome has formed.
15. Endosome and lysosome fuse forming endolysosome (sometimes called a secondary lysosome) for further digestion.
16. Calcium and amino acids etc released into extracellular fluids by exocytosis.

